

**The Influence of Individual Readiness for Change Dimensions on  
Quality Management Implementation in Algerian Manufacturing Organisations**

**Abstract**

A comprehensive literature review reveals a lack of empirical studies investigating the influence of individual readiness for change (IRFC) as a multidimensional construct on effective quality improvement programmes (often referred to as TQM) implementation. Much of the normative literature is conceptual in nature. Moreover, there is very limited research investigating the mediating role of employee affective commitment to change (IACC) between IRFCs and TQM. Therefore, this study proposes to fill this gap by providing empirical evidence leading to advancement in the understanding of direct and indirect influences of IRFC components on TQM implementation. To achieve this, a questionnaire-based survey was developed and self-administered to 226 middle managers in Algerian manufacturing organisations (AMOs) with a good rate of return of 52%. The analysis of the collected data revealed that two of the IRFC components, namely personally beneficial and change self-efficacy are the most supportive IRFC dimensions for TQM implementation. Furthermore, the results of this study show support for the mediating role of IACC in the relationship between IRFCs and TQM implementation. Therefore, this paper makes a novel contribution by providing a refined and deeper comprehension of the relationships between IRFCs and TQM implementation.

**Keywords:** TQM, Readiness, Change, Quality Management

## **1. Introduction**

In today's dynamic business environment, the pace of change influencing business continues to accelerate, and many new change initiatives such as effective quality improvement programs (sometimes referred to as Total Quality Management or TQM) as a management strategy, are being developed to increase organisational effectiveness and competitiveness (Bayazit and Karpark, 2007; McKay et al., 2013; Yazdani et al., 2016). All types of organisations, both multinational and single-country, are continuously faced with the need to adopt various strategic changes (Sonenshein and Dholakia, 2011; Choi and Ruona, 2011; Haffar et al., 2014). They must endeavour to implement such changes in order to achieve sustainable competitive advantages and build a thriving organisation.

In the current competitive global economy, many organisations in different parts of the world have adopted and implemented effective quality improvement programs (sometimes referred to as Total Quality Management or TQM) as a management strategy (Lam et al., 2011; Wu and Zhang, 2013; Zairi, 2013; Sadikoglu and Toccay, 2014; Valmohammadi and Roshanzamir, 2015; O'Neill et al., 2015; Georgiev and Ohtaki, 2016; Yazdani et al., 2016). This is due to their recognition of the TQM initiative as a change effort that complements the other acknowledged strategic drivers in supporting the organisations to achieve sustainable global marketing competitiveness (Lam et al., 2011; Calvo-Mora et al., 2014; Zeng et al., 2015).

Despite the claimed benefits of TQM over past years, the significant rate of TQM implementation failures reported by various organisations all over the globe has stimulated researchers to study the principle contextual and individual factors contributing to failures and the low level of TQM implementation (Sila, 2007; Soltani and Wilkinson, 2010; Haffar et al., 2013; Srinivasan and Kurey, 2014). Recent literature in the field of TQM shows that there is an

increasing recognition of the influence of individual readiness for change (IRFC) on the success or failure of TQM implementations (Weeks et al., 1995; McNabb and Sepic, 1995; Shea and Howell, 1998; Meirovich et al., 2006; Haffar et al., 2013). According to these scholars, organisational members' readiness for the TQM initiative influences their behavioural support for it (Weeks et al., 1995; Shea and Howell, 1998; Meirovich et al., 2006). Interestingly, while individual readiness for change is recognised as critical for TQM implementation, there is a lack of systematic and empirical studies regarding the relationship between individual readiness for change and TQM. Simultaneously, much of the extant research studies treated IRFC as a unidimensional construct, and only limited attention has been given to the various dimensions of IRFC (Jones et al., 2005; Haffar et al., 2013).

Holt et al. (2007) developed a more precise measurement of IRFC. The authors treated IRFC as a multidimensional construct that distinguishes between four separate components where the weight and relevance of each of the IRFC components depend on the type of change that organisations face. The complexity of the relationship between IRFC components and TQM implementation has been less explored to provide a sufficient understanding of the IRFC-TQM implementation relationship. We propose that further attention should be given to the different influences of these four dimensions as different IRFC components contribute in different ways to the level of TQM implementation. This would provide a deeper comprehension of the IRFCs-TQM relationship, thus increase the likelihood of TQM implementation success by paying extra attention on the most significant component of IRFC dimensions. To this effect, the purpose of this research study is to fill this gap by empirically examining the direct and indirect influences of all of the four IRFC components on TQM implementation success. This helps in determining

the most important factors (IRFC components) that organisations should mainly take into account in order to increase the level of the TQM implementation's success.

Moreover, a critical review and a thorough analysis of the relevant literature suggest that IRFC may significantly influence TQM implementation indirectly through their impact on individual affective commitment to change (IACC). However, there has been limited research investigating the indirect effect of IRFC on TQM implementation through IACC. Despite analysing varied aspects of change, no conclusive research to date has focused on the interrelationship among TQM, individual readiness and commitment to change.

Thus, this study advances the extant TQM and change management literature by examining the mediating role of IACC in the relationship between IRFC components and TQM implementation. Understanding this complex relationship among TQM, individual readiness and commitment to change helps to provide sound managerial practice to improve the success of TQM induced change effort.

The paper also adds value via its contextual originality by being one of the first studies conducted in the Algerian context, despite being a fertile ground for empirical research. Many AMOs have introduced modern management systems, including TQM, in order to improve their competitiveness in the domestic and international markets (Kasemi, 2009; European Commission, 2013). A thorough and critical review of the literature reveals a serious lack of empirical studies on the relationship between IRFC and TQM implementation more so in the Algerian context. This study therefore provides breadth and an in-depth understanding of the relationship between TQM and IRFCs, particularly in AMOs hence contributing to the scarce body of literature pertaining to the North African countries.

Recently, the increasing integration of the world economy, as evidenced by the establishment of the Euro-Mediterranean free-trade area (Kasemi, 2009; European Commission, 2013), raises opportunities and challenges for Algerian organisations. The Algerian economy relies heavily on oil and natural gas export revenues which account for 97% of Algeria's total export revenues (Ould Ahmad, 2015). However, after recent global oil price drop, earnings from oil and gas have dropped by 50 percent since 2015 (Ould Ahmad, 2015; Joffé, 2015). In the light of oil prices collapse, the Algerian government has been working recently to reduce its reliance on oil and gas revenues by encouraging other industries. As a consequence, the Algerian government has encouraged a reform in its manufacturing organisations to increase their exports. To this effect, the government scrapped the regulation that limits the ownership of foreigner investors to only 49% of shares, one aspiration of which is to encourage EU, Chinese and American policy makers and businesses to invest in Algeria. This paper therefore, will help shed some light on the Algerian industry and context and aid potential Western investors understand some facets of the Algerian AMOs which hopefully inform their decision to invest in Algeria in particular and in North Africa in general.

Authors such as Joffé (2015) consider that improving the quality of AMOs' products and their export would lead to increased employability and economic stability and thus decrease the social tension. This would help Algeria to avoid side effects of the "Arab Spring" uprising that erupted in its neighbours (Butler, 2015; Joffé, 2015). Furthermore, Algeria is accounted for amongst EU priorities, and as a very special partner, due to the joint business relationship with, as well as the geographical closeness to Europe. The economic development and social prosperity of Algeria is very important for the EU countries due to, the fact that it would not only help Algeria avoid the instability provoked by the Arab Spring, thus benefiting EU countries by

potentially avoiding another migration crisis, and further worsening challenges of illegal migration exacerbating existing conflicts in other countries such as Libya and Syria (Butler, 2015). Due to the large geographical borders Algeria shares with many other African countries, it is considered a natural barrier to the relentless waves of immigration to Europe. Within the context of the foregoing arguments, this research makes two important contributions. First, it bridges knowledge gap through investigating the mediating role of IACC in the relationship between IRFC components and TQM implementation. Second, it is situated in an unusual context – Algeria – where empirical data is scanty and often difficult to access.

## **2. Literature Review and Hypotheses Development**

### *2.1 Total Quality Management*

An extrapolation from the normative literature (see, among others Irani et al., 1997; Agus and Abdullah, 2000; Irani et al., 2004) suggests that TQM is one of the most important evolutions of management practices that is characterized by the principles of customer focus and continuous improvement.

The common belief of many authors, practitioners and researchers, such as Deming (1982), is that TQM as a management and philosophy is a means for companies to improve operational performance, overall organisational effectiveness and competitive advantage in both local and global markets (Kuo and Kuo, 2010; Lam et al., 2011). The results of many recent empirical studies provide evidence of the positive influence, both direct and indirect, of successful TQM implementation on the overall business performance of the organisation (Sharma and Gadenne, 2008; Sadikoglu and Zehir, 2010). A number of authors and quality experts consider that TQM principles and practices are universally applicable to any organisation

(Deming, 1982) regardless of the organisational contextual factors (e.g. size, technology, culture or external environment) (Zhao et al., 2004). Despite the claimed benefits of TQM, the relevant literature points to many research studies that indicate a high rate of failures or teething problems in the process of implementing TQM practices, due to barriers that hinder its implementation (Sila, 2007; Soltani and Wilkinson, 2010).

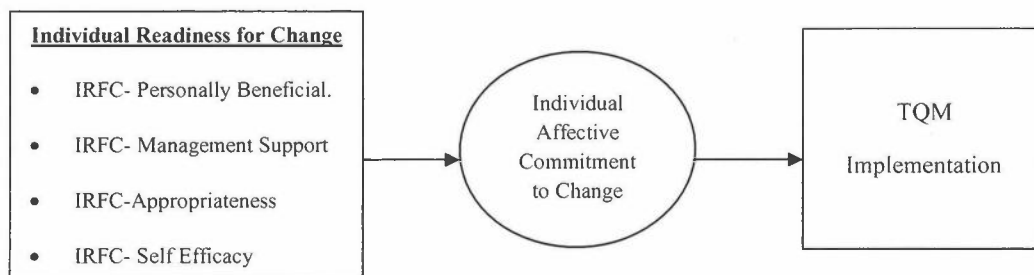
There is a significant version in the success of TQM implementation that could be explained by the differences in organisational contexts (Agus and Abdullah, 2000; Zhao et al., 2004). The concerns for TQM failures have led some organisational scholars to debate whether TQM implementation is contingent or universal (Sousa and Voss, 2001; Sadikoqlu and Zehir 2008). Contingency theory challenges the universal applicability of total quality management and argues that whether TQM implementation would or would not be successful is dependent on the organisational context. Authors such as Zhao et al. (2004) and Sadikoqlu and Zehir (2008) argue that organisations are heterogeneous and have different organisational contexts. The context's heterogeneity generates variability in performance across organisations. A number of studies have found that the implementation of TQM is influenced by contextual factors, and that particular contingent factors can cause failure in TQM implementation (Sousa and Voss, 2001; Soltani et al., 2008). Many authors, such as Sadikoqlu and Zehir (2008), found that while TQM is universally applicable to any organisation, its degree and intensity of implementation is context dependent. To this effect, such studies provide support for a contingency approach to TQM, and suggest that a contingency theory of change is a suitable way to address TQM implementation.

The failures in implementing TQM are typically attributed to organizational contingent, situational or contextual factors such as unsupportive organizational culture, resistance to

change, lack of resources, or uncommitted leadership (Zhao et al., 2004; Sadikoqlu and Zehir, 2008). A low level of IRFC is considered by many authors as a major reason for TQM failure (Weeks et al., 1995; McNabb and Sepic, 1995; Shea and Howell 1998; Meirovich et al., 2006; Haffar et al., 2013; Georgiev and Ohtaki, 2016).

Additionally, extant literature establishes and suggests that IRFC may influence TQM implementation indirectly through their impact on individual affective commitment to change (IACC). However, studies on the indirect effect of IRFC on TQM implementation through IACC are scarce. Therefore, this study aims to contribute to the bridging of gap in existing research by providing empirical validation on the influences of all IRFC components on TQM implementation and the mediating role of IACC in this relationship.

In furtherance of achieving the research objectives, figure 1 shows how IRFC, IACC and TQM variables contribute to building up the conceptual framework. The framework proposes that the IRFC components affect IACC and TQM, and that IACC will mediate the relationship between IRFC components and TQM implementation. The conceptual framework also describes the relationships between variables that contribute to the research problem and thus facilitates the generation of testable hypotheses as it will be elaborated later.



**Figure 1. The initial conceptual framework**



## *2.2 The critical role of individuals on organisational change*

Employees in organisations all over the world are faced with many organisational changes, such as downsizing and the implementation of new technologies, as well as new management practices (Su et al., 2009; Stevens, 2013). Despite the importance of adopting new change initiatives, recent reviewed articles have estimated that the failure rates for organisational change implementation range somewhere between 28% to as high as 70% (Decker et al., 2012; McKay et al., 2013). Many organisations overlook the strategic aspect of change and fail to develop the long-run change capabilities needed for ongoing success (Choi and Ruona, 2011). The significant rate of change implementation failure reported by organisations worldwide has directed researchers to study the major contextual and individual factors contributing to the success or failure of organisational changes (Jones et al., 2005; Choi and Ruona, 2011).

Many organisational changes result in increased costs, purely as a result of workers' unwillingness or difficulty in embracing such changes, due to uncertainty and fear of the new circumstances (Su et al., 2009; Choi and Ruona, 2011). This reluctance can result in a consequential fall in organisational productivity (Su et al., 2009). However, the majority of the research covered in previous organisational change reviews (see Judge et al., 1999; Ford and Ford, 2010) focused on how organisations get ready for, introduce, apply, and react to organisational change. The literature published in the 1990s relating to organisational change at the organisational level is usually considered within a macro systems orientated focus (Judge et al., 1999). Relatively recently, many authors have viewed the subject from a micro level and stressed the role of the individuals or human factors in implementing strategic changes (Jones et al., 2005; Holt et al., 2007; Choi and Ruona, 2011; Sonenshein and Dholakia, 2011). The main

idea underlying this perspective is that “change in the individual organisational member’s behaviour is at the core of organisational change” (Porras and Robertson, 1992, p. 724).

Many researchers have argued that individual readiness for organisational change is separated from organisational readiness for change. Holt et al. (2007) have argued that the readiness and commitment for change must occur at an individual level, as change practices are launched and performed by individuals within companies. In other words, even the most collective activities that occur within companies are often a combination of the activities of individual organisational members. As a consequence, companies accept or refuse change through the actions of their employees (Armenakis et al., 1993; Holt et al., 2007). Many scholars claim that successful organisational changes only persist over the long term when individuals change their behaviour whilst they are carrying out their duties in appropriate ways (Jones et al., 2005; Choi and Ruona, 2011).

Preskill and Torres (2001) stated that the key elements of organisational readiness are within its infrastructure, culture, leadership, communication, and systems and structures. In addition, individuals’ evaluation concerning the change specific efficacy and personal benefit of the change (Jones et al., 2005; Holt et al., 2007; Salvato and Rerup, 2011; Stevens, 2013), and the ability of the organisational infrastructure to facilitate and support organisational change, are critical for individuals to be ready for a specific organisational change initiative (Choi and Ruona, 2011; Salvato and Rerup, 2011). In organisations, the members can be either the key to accomplishing change implementation successfully, or the greatest hindrance (Jones et al., 2005; Holt et al., 2007). Schein (2010) has addressed the failure of organisational change programmes by arguing that the main reason that so many change efforts run into resistance or complete failure, can be traced back to the organisation’s incapacity to successfully create individual

readiness for change and individual commitment to change prior to trying to introduce a change. According to the researchers, ignoring the vital role of individual employees in the change process may cause failure or difficulty in implementing many change initiatives, such as total quality management (Meirovich et al., 2006). Therefore, many recent studies have focused on the critical role of individual readiness for change (Jones et al., 2005; Holt et al., 2007) and individual commitment to change (Neubert and Cady, 2001; Meyer et al., 2002; Herold et al., 2007; Meyer et al., 2007; Shum et al., 2008) in the organisational change process.

Armenakis et al. (1993, p. 298) have defined individual readiness for change as “the cognitive precursor to the behaviours of either resistance to, or support of, a change effort”. Jones et al. (2005, p. 362) developed this concept and describe readiness for change as “the extent to which employees hold positive views about the need for organisational change (i.e. change acceptance), as well as the extent to which employees believe that such changes are likely to have positive implications for themselves and the wider organisation”. Holt et al. (2007, p. 326) conceptualised organisational members’ readiness for change as “an individual’s attitude toward a particular change”. It “reflects the extent to which an individual or individuals are cognitively and emotionally inclined to accept, embrace, and adopt a particular plan to purposefully alter the status quo” (Holt et al., 2007, p. 235). In addition, they suggested that individual readiness for change reflects the extent to which organisational members believe that “they are capable of implementing a proposed change and feel confident that they would perform well and be successful (i.e., change-specific efficacy), the proposed change is appropriate and would be beneficial for the organisation (i.e., appropriateness), the leaders support the change (i.e., management support), and that the proposed change is beneficial to organisational members (i.e., personal valence)” (Holt et al., 2007, p. 232). Therefore, it can be concluded that individual

readiness for change involves organisational members' evaluation of the benefits that members and their wider organisation may achieve from implementing the change, as well as the individual and organisational ability to perform change and the need for organisational change (Armenakis et al., 1993; Eby et al., 2000; Holt et al., 2007; Irani, 2010, Ford and Ford, 2010).

A comprehensive review of the extant literature suggests that a distinction should be made between individual readiness for change and individual affective commitment to change. Individual readiness for change has been recognised to be one of the most important predictors of organisational members' affective commitment to change (Neubert and Cady, 2001; Herold et al., 2007; Holt et al., 2007; Visagie and Steyn, 2011). Herscovitch and Meyer (2002) developed a model of commitment to organisational change initiatives based on Meyer and Herscovitch's (2001) general theory of workplace commitment. They conceptualised commitment to change as 'a mindset that binds an individual to a course of action deemed necessary for the successful implementation of a change initiative', and considered that this mindset 'can reflect (a) a desire to provide support for the change based on a belief in its inherent benefits (affective commitment to the change), (b) a recognition that there are costs associated with failure to provide support for the change (continuance commitment to the change), and (c) a sense of obligation to provide support for the change (normative commitment to the change)' (Herscovitch and Meyer, 2002, p. 475). According to Meyer and Allen (1991 p.75) it is more probably due to it being psychologically orientated that affective commitment will have the biggest influence on an 'employee's organisation-relevant behaviour'. Employee affective commitment has been found to be associated the most with higher levels of support behaviour, compared to the other two dimensions of commitment (Herscovitch and Meyer, 2002).

Individual commitment to change (ICC) is defined not only by individuals' attitude toward the change initiative but also by their intention to support it (Herold et al., 2007).

Neubert and Cady (2001) found that individuals, who expect a personal benefit from implementing change programmes such as TQM, will more likely be committed to TQM induced change. Choi et al. (2016) also argued that perceived organisational support and reward increases organisational members' affective commitment to TQM, due to their expectation that greater efforts towards engaging in TQM will be rewarded. It is, therefore, reasonable to put forward the following hypothesis which suggests an association between the level of IRFC personal benefit and the level of individual affective commitment to TQM.

H1a. Organisational members' perceptions of personal benefits will be positively related to employee affective commitment to TQM - induced change.

Neubert and Cady (2001) found that employees, who believe that they are capable of implementing a change program, will more likely be committed to a program of change. Moreover, Santhidran et al. (2010) suggest that preparing and increasing employee readiness for change will ultimately lead to improving their affective commitment to change. Several authors such as Judge et al. (1999), Meyer et al. (2002), Neubert and Cady (2001), Neves (2009) and Salvato and Rerup (2011) concluded that individuals with more confidence in their ability to cope with organisational change (self-efficacy), are expected to have a stronger affective commitment to changes induced by TQM. Therefore, from the foregoing discussion, we propose the following hypothesis:

H1b. Organisational members' self-efficacy perceptions will be positively related to employee affective commitment to TQM - induced change.

Similarly, when organisational members believe that a particular change is a sufficient solution for the organisation (IRFC- appropriateness); they have a higher level of affective commitment to change (Neves, 2009). Numerous authors such as Coyle-Shapiro (2002) and Choi et al. (2016) stated that managers need to provide organisational members with information about the appropriateness and feasibility of TQM implementation in their organisations. Doing so leads to higher readiness and effective commitment to TQM (Coyle-Shapiro, 2002; Choi et al., 2016). This leads to the formulation of the following hypothesis:

H1c. Organisational members' perceptions of change appropriateness will be positively related to employee affective commitment TQM - induced change.

Many authors also argue that effective top management and leadership that place a premium on participation, also intensifies employee affective commitment to change (Neal, 2008; Santhidran et al., 2010). Coyle-Shapiro (2002) and Choi et al. (2016) found that employees are more likely to have a high commitment towards TQM when the manager is holding positive attitude toward TQM. Thus, it is hypothesised that:

H1d. Organisational members' perceptions of management support will be positively related to employee affective commitment TQM – induced change.

### *2.3 The influence of individual readiness for change and individual affective commitment to change on TQM implementation*

Change management specialists have stressed the significance of creating individual readiness for change and individual commitment to change in order to increase the probability of change implementation success (Deming, 1982; Armenakis et al., 1993; Neubert and Cady, 2001; Jones et al., 2005; By, 2007; Holt et al., 2007; Meyer et al., 2007; Weiner, 2009; Mansor et al., 2011). According to many authors, ignoring the vital role of individual employee's attitude and behaviour in the change process causes difficulties and in some cases failures in implementing many change initiatives, such as TQM (Meirovich et al., 2006).

Armenakis et al. (1993) argued that a low level of change readiness is the major reason that organisations fail in their attempts to implement change successfully. This is confirmed in other studies, such as By (2007), who found that there is a relationship between the level of individual readiness for change and the successful management of change. Jones et al. (2005) concluded that organisations which implement change initiatives before preparing their members to be psychologically ready may not achieve change implementation success. In addition, some recent research studies have also shown that individual commitment to change is positively related to supportive behaviours, such as cooperation and championing (Neubert and Cady, 2001; Meyer et al., 2007; Shum et al., 2008).

The influence of the level of employee readiness for change and commitment to change on the success of TQM programmes has been highlighted by many authors (e.g. Weeks et al., 1995; McNabb and Sepic, 1995; Shea and Howell, 1998; Soltani et al., 2005; Meirovich et al., 2006). They argue that high levels of individual readiness for change and individual commitment to change have a positive influence on organisational members' engagement with the

implementation of TQM. In other words, organisational members who hold positive beliefs and attitudes and commitment to TQM induced change are more likely to change their behaviours in order to support the successful implementation of TQM. Similarly, a low level of individual readiness for change (Meirovich et al., 2006) and individual commitment to change (Soltani et al., 2005; Mansor et al., 2011) increases the likelihood of TQM failure.

Therefore, organisational members' beliefs influence the cognitive process in which individuals engage to decide whether or not to implement TQM practices. Such cognitive processes have been the subject of the widely supported theory of self-regulated individual behaviour labelled social cognitive theory (Bandura, 1986). The theory proposes that when organisational members' readiness for organisational change is high, i.e. possessing a strong positive attitude towards change, they are more likely to implement change (e.g. new practices). They are also more likely to exert more effort in support of change, and to show higher persistence in the face of barriers or hindrances throughout implementation (Gist and Mitchell, 1992; Weiner, 2009).

Organisational members who believe that they will gain some benefits (IRFC- personal valence) as a result of their participation in achieving TQM implementation success, such as promotional opportunities or rewards, are generally more willing to accept the implementation of TQM practices (Shea and Howell, 1998). This, in turn, leads them to behave in a manner consistent with TQM principles (Weeks et al., 1995; Shea and Howell, 1998). When employees believe that they will not lose their status and their jobs will not be limited because of TQM implementation, their readiness to accept a new managerial approach, such as TQM, is more likely to be high (Whetten and Cameron, 1991; Weeks et al., 1995; Whetten et al., 2000). As a consequence, the following hypothesis was developed:



H2a. Organisational members' perceptions of personal benefits will be positively related to TQM implementation success.

Organisational members who have received adequate training on TQM implementation will have more confidence in their ability to cope with TQM practices (IRFC- self-efficacy) effectively, and their eagerness to accept and support TQM implementation should be high (Weeks et al., 1995; Shea and Howell, 1998; Ingelsson et al., 2012). This will, in turn, foster individuals' involvement in the implementation of TQM and increase the probability of TQM success (Ciampa, 1992; Shea and Howell, 1998; Harvey and Millett, 1999; Soltani et al., 2005). Such extant studies suggest that the level of organisational members' self-efficacy has positive influence on the level of TQM implementation success. Therefore, based on the foregoing, we propose the following hypothesis:

H2b. Organisational members' self-efficacy perceptions will be positively related to TQM implementation success.

Choi et al. (2016) argued that when organisations establish the importance of effective TQM implementation as a shared vision and goal, their employees will endeavour to pursue TQM with a common aspiration. Authors such as Case and Srikatiana (1998) believe that organisational members' perception of the relevance of TQM practices to improving organisational performance has a positive influence on their willingness to accept the implementation of TQM. Based on the above, the following hypothesis is formulated:

H2c. Organisational members' perceptions of change appropriateness will be positively related to TQM implementation success

Weeks et al. (1995) consider that in order to enhance the likelihood of TQM success, an organisation's top decision makers should put all of their support behind the implementation of TQM (IRFC- management support). By committing to TQM, top management should support employees' development and involving them in the process of TQM implementation (Choi et al., 2016). This will lead to increased employees' acceptance of TQM implementation. It is, therefore, reasonable to put forward the following hypothesis:

H2d. Organisational members' perceptions of management support will be positively related to TQM implementation success.

Many scholars, such as Deming (1982), considered that the success of a TQM implementation is greatly dependent on having organisational members with a high level of affective commitment to change. Organisational members who show strong affective commitment to the change initiative will work above and beyond their normal duties in order to ensure the change initiatives are successful (Shum et al., 2008). In order for change initiatives, such as one introduced via TQM implementation to be achievable, organisational members need to have a high level of affective commitment to change (Meyer et al., 2007; Shum et al., 2008). However, only a few empirical studies have tested the influence individual commitment to change has on TQM implementation. For example, Mansor et al. (2011) examined the influence of employee commitment on TQM implementation in Malaysian local authorities. They found that successful implementation of TQM is positively influenced by employee commitment to TQM induced change. Therefore, based on the discussion thus far, we propose the following hypothesis:

H3. Employee affective commitment to change will be positively related to TQM implementation success.

The above hypotheses, stated in the previous sections, show the relationships amongst IRFCs, ACC and TQM implementation. Implicitly, the discussion suggests that IRFCs influence TQM implementation through their impact on IACC. That is, IRFCs have an impact on the level of IACC, which, in turn, influences the level of implementation of TQM. This leads to the formulation of the following hypotheses:

H4. IACC mediates the effect of (a) IRFC- personal valence, (b) IRFC- self-efficacy, (c) IRFC- appropriateness and (d) IRFC- management support on TQM implementation.

#### *2.4 The proposed theoretical framework*

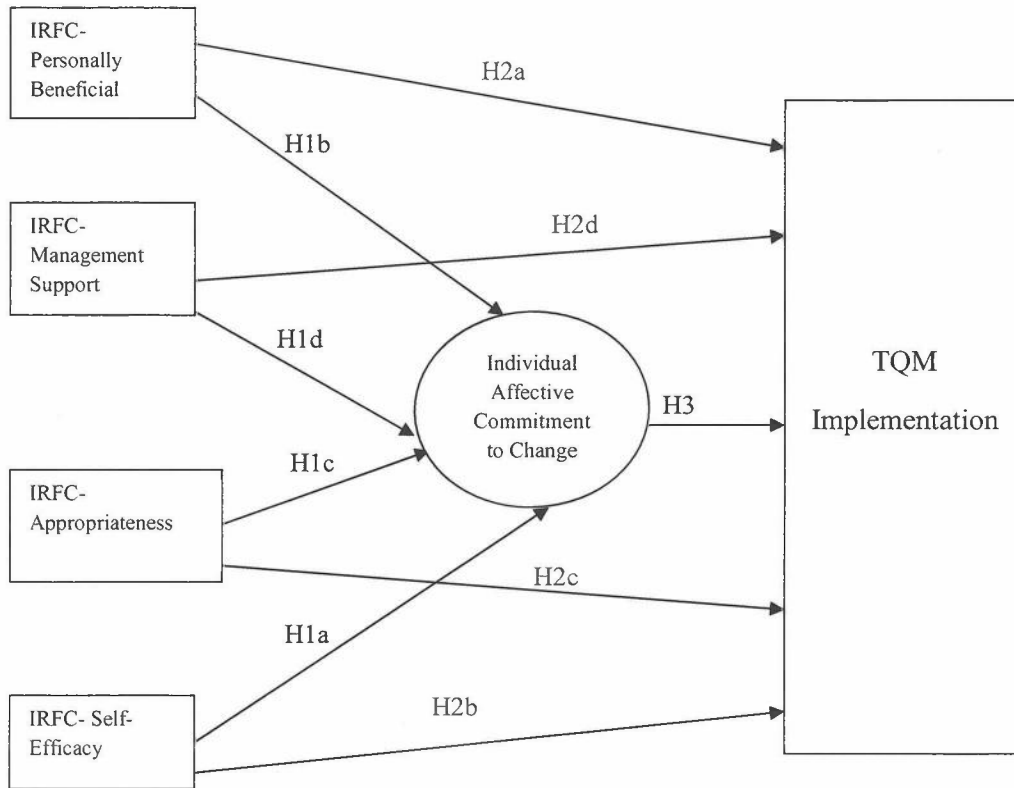
Through the critical review, in-depth examinations and theoretical discussions mentioned in the previous sections, we developed a proposed theoretical framework (see Figure 1), aggregating and bringing the aforementioned research hypotheses together. The theoretical framework of this study is based on the literature in the fields of TQM, individual readiness and commitment to change. This framework is constructed using social cognitive theory (Bandura, 1986), which states that a high level of employee readiness to accept new changes increases the likelihood of change implementation success, in order to explain and examine the relationships between IRFC, ICC and TQM implementation. Firstly, the model postulates that, based on the social cognitive theory premises, IRFC components (change-specific efficacy, personal benefits of the change, management support for the change and change appropriateness) are positively related to IACC and TQM implementation. Similarly, underneath social cognitive theory premises is the assumption that IACC is positively related to TQM implementation. According to this theory, organisational members' beliefs influence the cognitive process in which individuals engage to decide whether or not to implement TQM practices (Shea and Howell, 1998). Lastly,

based on social cognitive theory, there is a cognitive and self-regulatory mechanism which mediates the influence of IRFCs on TQM (Shea and Howell, 1998). The current study proposes that IACC mediate the effects of IRFCs on the level of TQM implementation. This mediator is an internal and not directly observable psychological process, which transmits an effect from antecedent to a consequence (James and Brett, 1984).

The proposed framework combines the relevant factors identified separately in previous studies as influencing the implementation of TQM, namely: individual readiness for change and individual commitment to change. Despite analysing varied aspects of change, to date no conclusive research focuses on the interrelationship among TQM, individual readiness and commitment to change. Thus, our integrative theoretical framework was developed by combining the direct effect of IRFCs on TQM implementation and the indirect effect (through IACC) on TQM implementation in a single model. This framework is based on the assumptions that the higher the IRFCs (causal variables), the higher the IACC (intervening variable) will be, and the higher the level of TQM implementation (outcome variable).

In a related vein, according to the proposed model in this paper (see Figure 2), a distinction should be made between the components of individual readiness for change. This can be guided by the component factors (change specific efficacy, personal benefits of the change, management support for the change and change appropriateness) identified in this paper, based on the study of Holt et al. (2007). This would provide a deeper understanding of the relationships between IRFCs, IACC as well as TQM implementation. To the best knowledge of the authors, this is the first time such an integrative theoretical framework has been tested theoretically and empirically.

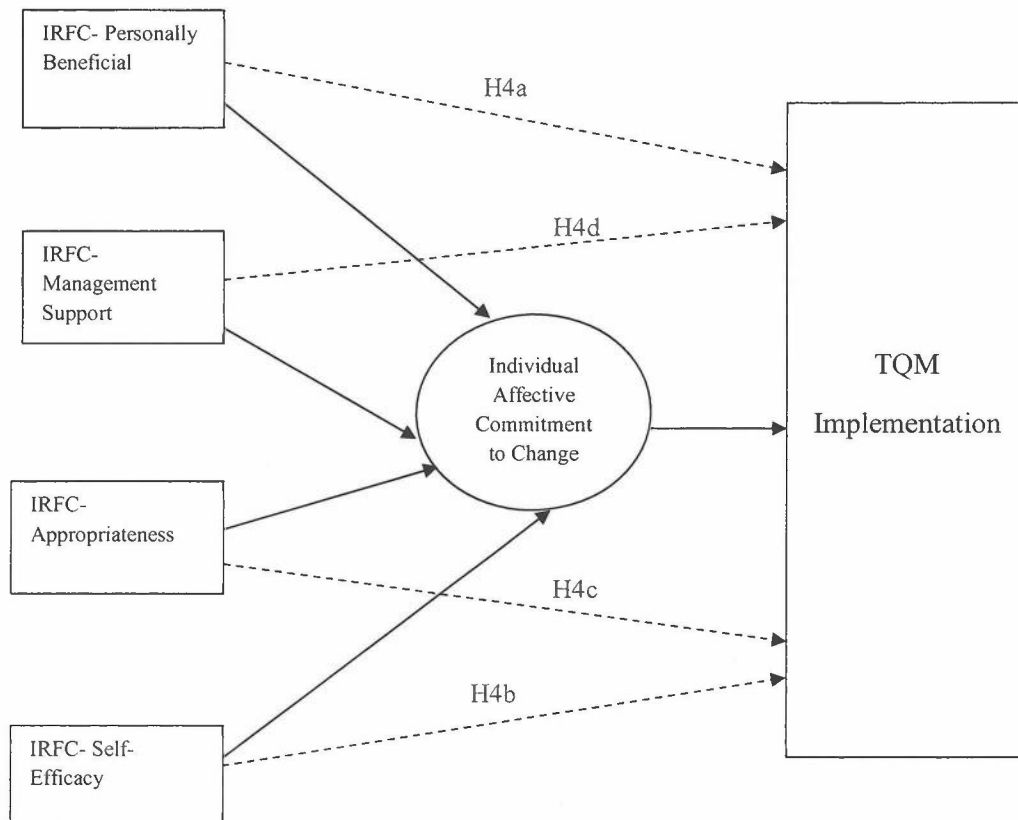
### IRFC components



**Figure 2.** Hypothesised Research Model of the direct influence of IRFCs on IACC and TQM Implementation

In order to mitigate the complications of a single framework as well as distinguish the direct and indirect hypotheses, figure 3 below is introduced. While figure 2 we present the direct relationships depicting the relationship between the IRFC components and both IACC and TQM implementation, figure 3 details the indirect relationship of the hypothesised research model which is the mediating role of IACC between IRFCs and TQM Implementation. Specifically, figure 3 represents the indirect influences of IRFCs on the TQM implementation via its influence on IACC.

### IRFCs



**Figure 3** Hypothesised Research Model of the Mediating Role of IACC between IRFCs and TQM Implementation

In the aforementioned figures, the solid arrows signify the hypothesised direct relationships, while the dotted arrows display the hypothesised indirect relationships. Therefore, the mediating influences of the IACC are represented by the dotted arrows.

### **3. Methodology**

#### *3.1 Questionnaire Instruments*

This research adopted three widely used valid and reliable instruments, which fitted and served the aim and objectives of the current study. These instruments were translated into Arabic and French in order to be distributed in Algeria. The validity and reliability of these scales will be tested for the new context in our study. All the constructs of the model were measured using multiple items based on validated scales obtained from the existing literature, and the items were assessed via a five-point Likert-scale, ranging from strongly disagree to strongly agree. The three constructs measured were the following:

Individual readiness for change (IRFC): In order to measure the level of IRFC components, the reliable and valid instrument developed by Holt et al. (2007) was adopted. Unlike previous studies which treated IRFC as a one-dimensional construct, Holt et al. (2007) developed a more precise and relevant measurement of IRFC. They treated it as a multifaceted measure that distinguishes between four components of IRFC. This current study also uses the scale of Holt et al. (2007), as it fully captures existing definitions and concepts of IRFC and offers better operationalization of this variable. This instrument consists of 25 items designed to assess the extent to which organisational members feel positive about the implementation of TQM as a new change initiative. The respondents were asked about their perception and evaluation regarding the benefits that members and the wider organisation may achieve from a TQM induced change, the individual and organisational ability for performing change, and the need for organisational change.

Individual affective commitment to change (IACC): IACC was measured by using Herscovitch and Meyer's (2002) instrument. TQM: In order to measure the level of implementation of TQM practices in AMOs, the valid and reliable instrument developed by Samson and Terziovski (1999) was utilised and adopted. In this instrument the empirical constructs are guided by and based on the principle criteria of the MBNQA\*. The findings from many empirical studies, such as Ahire et al. (1996), have demonstrated that TQM practices are strongly correlated to each other, supporting the synergy among the practices. Like many previous studies, the current study views TQM as a unidimensional set (or package) of practices. TQM is modelled as a single latent variable that is measured by six first-order latent variables, namely plan (Strategic Planning), info (Information and Analysis), peop (People Management), cust (Customer Focus), proc (Process Management) and lead (Leadership). All the items were assessed via a 5-point Likert-scale, ranging from 1 (strongly disagree) to 5 (strongly agree).

### *3.2 Sample and Data Collection*

The target population of this research consists of all the public and private Algerian manufacturing organisations (AMOs) involved in implementing quality initiatives. The population of AMOs is concentrated mostly in the South of Algeria and very few are located in the northern part which is mainly desert (part of the Grand Sahara). 70% of AMOs is based in two cities (Algiers and Oran). Contacting and distributing the questionnaires to all the relevant companies was difficult due to the geographical spread, thus, we chose to adopt a random sampling technique and selected a sample consisting of 226 out of 278 AMOs, involved in implementing quality initiatives. The sample covers a wide cross-section of manufacturing

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\* Malcolm Baldrige National Quality Award



industries including, chemical, clothing, pharmaceuticals, food and electronics. Thus, the researcher aimed at selecting a random sample, as it is more likely to be representative of the population from which it has been selected (Bryman and Bell, 2015). This in turns would enable the use of some statistical techniques to test the research hypotheses and enhance the generalisability of the findings.

Content validity was checked using experts and academics from Algerian universities before the questionnaires were distributed to the target sample. All of the experts considered that the questionnaire was appropriate, would achieve the aim of the study and needed only a little editing. The proposed questionnaire was then adjusted and amended according to the feedback and comments of the experts. A personal delivery procedure of the questionnaires to the participants and the collection of the completed ones was adopted as it is considered the most efficient method of data collection in the Algerian context. The final version of the questionnaire was distributed to 226 middle managers (operation, production and quality managers) in AMOs.

The manager deemed as most familiar with the topic in each organisation was approached to complete the questionnaire. This methodological approach has been used in previous studies (e.g. Goll and Rasheed, 1997) and had been found to be more successful. In the context of this research, middle managers were considered as the key participants that fits this bill. Bower (1970) considered that middle managers are the key agents of change. In addition, they set up and launch the practices and incentives that are needed to maintain the change in their departments. TQM will not work if these middle managers do not have a comprehension of and commitment to TQM (Schneider et al., 1996). The completed questionnaires numbered 131, 118 of which were useable. The overall response rate was thus 52.2 %. The sample size is deemed adequate based on the output of the statistical package G\*Power 3 was 108 with Power (1- $\beta$  error

probability) of 90% and  $\alpha$  of 0.05 effect size  $f^2 = 0.15$ . Moreover, many authors consider 100+ to be a good sample size. For example, while Green (1991) suggested  $N > 50 + 8m$  (where  $m$  is the number of IVs) for testing the multiple correlation and  $N > 104 + m$  for testing individual predictors (assuming a medium sized relationship); Tabachnick and Fidell (2013) suggested that although 20 cases per variable would be preferable, the minimum required case per variable should be 5. Moreover, previous research studies in Algeria particularly, and North Africa in general, have reported lower sample than the current study due to lack of trust, confidentiality and lack of research (e.g. Kasemi, 2009; Malouk 2010; Wali and Boujelbene, 2011).

#### **4. Analysis and Results**

The Statistical Package for Social Sciences (IBM SPSS) software was used to analyse the data. All of the items were assessed via a 5-point Likert-scale, ranging from 1 (strongly disagree) to 5 (strongly agree).

##### *4.1 Measurement checks: Reliability and Construct Validity*

This study has used Cronbach's coefficient alpha to measure and estimate the degree of the internal consistency of each construct. All of the scales have a high reliability and values of Cronbach's alpha derived for the constructs ranging from 0.707 to 0.889.

We assessed the construct validity of each construct by using the Principal Components Factor Analysis (Hair et al., 1992). "A measure has construct validity if it measures the theoretical construct that it was designed to measure" (Samson and Terziovski, 1999, p. 403). Our results are presented in Table 1, which show that all factors loaded acceptably well. Similar to the theoretical categorization, each measure did form a 'solid' construct and exhibit strong

unidimensionality from a statistical perspective. Overall, our scales were found to have adequate reliability and validity and were consequently employed in the hypotheses testing.

**Table 1.** Results of Factor and Reliability Analyses (N=118)

	No. of items	Factor loadings	% variance explained	Cronbach Alpha
IRFC- Personally Beneficial	4	0.594 - 0.854	58.325	.752
IRFC- Management Support	6	0.604 - 0.927	65.883	.889
IRFC- Self-efficacy	6	0.626 - 0.878	63.263	.883
IRFC- Appropriateness	8	0.460 - 0.806	50.583	.830
Individual Affective Commitment to Change (IACC)	6	0.458 - 0.903	55.419	.784
Leadership	7	0.394 - 0.888	51.160	.722
Customer Focus	7	0.535 - 0.898	53.553	.707
People Management	9	0.553 - 0.827	51.119	.776
Strategic Planning	7	0.336 - 0.935	50.240	.743
Process Management	6	0.708 - 0.826	57.359	.802
Information and Analysis	6	0.391 - 0.803	57.359	.762
Total Quality Management (TQM)	6	0.759 - 0.812	62.005	.876

#### 4.2 Descriptive Statistics

Table 2 illustrates the mean score for TQM practices implementation and IRFC components. According to the mean values, it is clear that both the level of TQM practices implementation and the level of IRFC components were low in AMOs.

**Table 2.** The Mean Score of TQM practices and IRFC components

	Mean	SD	N
IRFC- Personally Beneficial	2.57	.768	118
IRFC- Management Support	2.70	.890	118
IRFC- Self-efficacy	2.61	.828	118
IRFC- Appropriateness	2.69	.932	118
Individual Affective Commitment to Change Leadership	2.35 2.67	.984 .830	118 118
Customer Focus	2.63	.720	118
People Management	2.65	.813	118
Strategic Planning	2.69	.823	118
Process Management	2.53	.730	118
Information and Analysis	2.57	.746	118
TQM	2.36	0.65	118

#### 4.3 Testing the research hypotheses

A series of regression analyses (see Table 3) were performed to investigate the proposed relationships among individual readiness for change components, individual commitment to change and TQM implementation.

**Table 3.** Summary of the Results of the Regression Models (N=118)

		Unstandardized Coefficients		Standardized Coefficients	T- test	Sig
		B	S.E	Beta		
Model 1: Dependent Variable: TQM	Personally Beneficial	.162	.041	.239	3.950	.000
	Self-efficacy	.320	.045	.431	7.128	.000
	Management Support	-.077	.067	-.129	-1.149	.252
	Appropriateness	-.024	.074	-.036	-.324	.746
Model 1 Summary Sig of F= .000 Adjusted R <sup>2</sup> = .332						
Model 2: Dependent Variable: IACC	Personally Beneficial	.122	.062	.139	1.976	.040
	Self-efficacy	.350	.068	.338	5.170	.000
	Management Support	-.140	.101	-.169	-1.392	.166
	Appropriateness	-.053	.111	-.058	-.475	.635
Model 2 Summary Sig of F= .000 Adjusted R <sup>2</sup> = .235						
Model 3: Dependent Variable: TQM	Personally Beneficial	.103	.029	.153	3.596	.000
	Self-efficacy	.153	.033	.206	4.584	.000
	Management Support	-.010	.047	-.017	-.210	.834
	Appropriateness	.001	.051	.002	.027	.979
	IACC	.477	.033	.666	14.305	.000
Model 3 Summary Sig of F= .000 Adjusted R <sup>2</sup> = .676						

Multiple regression analysis was used to test the direct effects of IRFC components on TQM implementation. As Table 3 (Model 1) shows, IRFC- self-efficacy ( $\beta = 0.431$ ,  $p < 0.001$ ) and IRFC- personal valence ( $\beta = 0.239$ ,  $p < 0.001$ ) have a positive and significant effect on TQM implementation. These results strongly support the research hypotheses numbers H2a and H2b. However, the effect of IRFC- management support and IRFC- appropriateness are not significant; thus, H2c and H2d are not supported. Thus, changes to the proposed conceptual framework (see Figure 2) were forced by the findings of the empirical data analysis and hypotheses testing.

Thus, IRFC- self-efficacy and IRFC- personal valence are the most influential IRFC dimensions in TQM implementation. They made the most important contribution to explaining the variation in TQM implementation. It appears that in the presence of IRFC- self-efficacy and IRFC- personal valence, which have a strong impact on TQM implementation, IRFC- management support and IRFC- appropriateness dimensions start losing their effect and become relatively less significant. Thus, they are the least influential IRFC components in TQM as compared to the other IRFC components, i.e., IRFC- self-efficacy and IRFC- personal valence dimensions. The model explained about 33.2 % of the variance in TQM implementation.

Multiple regression analysis was conducted to examine the influence of IRFC components on IACC. The results in Table 3 (Model 2) show that IRFC- self-efficacy ( $\beta = 0.338$ ,  $p < 0.05$ ) and IRFC- personal valence ( $\beta = 0.139$ ,  $p < 0.05$ ) have a positive and significant effect on IACC, thus, H1a and H1b are supported. Whereacs the effects of IRFC- management support and IRFC- appropriateness on IACC are not significant; thus, H1c and H1d are not supported. The variables in Model 2 explain 23.5% of the total variance in IACC. The results in Model 3

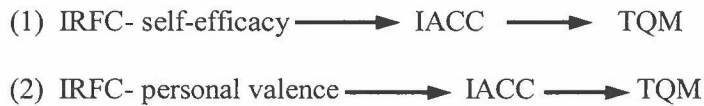
shows that IACC ( $\beta = 0.666$ ,  $p < 0.001$ ) has a positive and significant effect on TQM implementation. This result supports H3.

This study follows Baron and Kenny's (1986) procedure to examine the mediating role of IACC between IRFCs and TQM. The first step is to test the direct relationship between the independent variables (IRFCs) and the dependent variable (TQM) in order to establish that there is an effect that may be mediated. The preceding analysis demonstrated that only the IRFC- self-efficacy and IRFC- personal valence dimensions affect TQM significantly (see the results of Model 1 in Table 3). Thus, testing the indirect effects of IRFC- self-efficacy and IRFC- personal valence dimensions meets Baron and Kenny's (1986) first test condition. The IRFC- management support and IRFC- appropriateness dimensions are unrelated significantly to TQM implementation, therefore testing for mediation for these variables violates Baron and Kenny's (1986) first test condition.

The second step is to ensure that the independent variables (IRFCs) influence the mediator (IACC). The preceding analysis showed that the IRFC- self-efficacy and IRFC- personal valence dimensions affect IACC significantly (see the results of Model 2 in Table 3). Thus, the condition for step 2 was met. The third step is to ensure that the mediator variable has an impact on the dependent variable. When IACC is introduced into Model 3 (Table 3), it shows a positive and significant effect on TQM implementation. Thus, the condition for step 3 was met.

The fourth step is to conduct multiple regression analysis to include the mediator in the model in order to assess the mediating role of IACC in the relationship between IRFC- self-efficacy/IRFC- personal valence and TQM implementation. The inclusion of IACC into Model 3 leads to a decrease in the effect size (i.e. strength) of IRFC- self-efficacy (from  $\beta = 0.431$  to  $\beta = 0.206$ ) and of IRFC- personal valence (from  $\beta = 0.239$  to  $\beta = 0.153$ ) on TQM implementation, but

both remain significant, suggesting partial mediation. The influence of IRFC- self-efficacy/IRFC- personal valence on TQM implementation was greatly decreased when the mediator (IACC) was included in the model. These results are consistent with Baron and Kenny's (1986) partial mediational conditions. Thus, in this study, IACC can be described as a partial mediator in the relationship between IRFC- self-efficacy/IRFC- personal valence and TQM implementation. These results indicate that IRFC- self-efficacy and IRFC- personal valence affect TQM implementation indirectly through their effects on IACC, in support of H4a and H4b. Thus, we confirm that IACC mediates the effect of self-efficacy and IRFC- personal valence on TQM implementation.

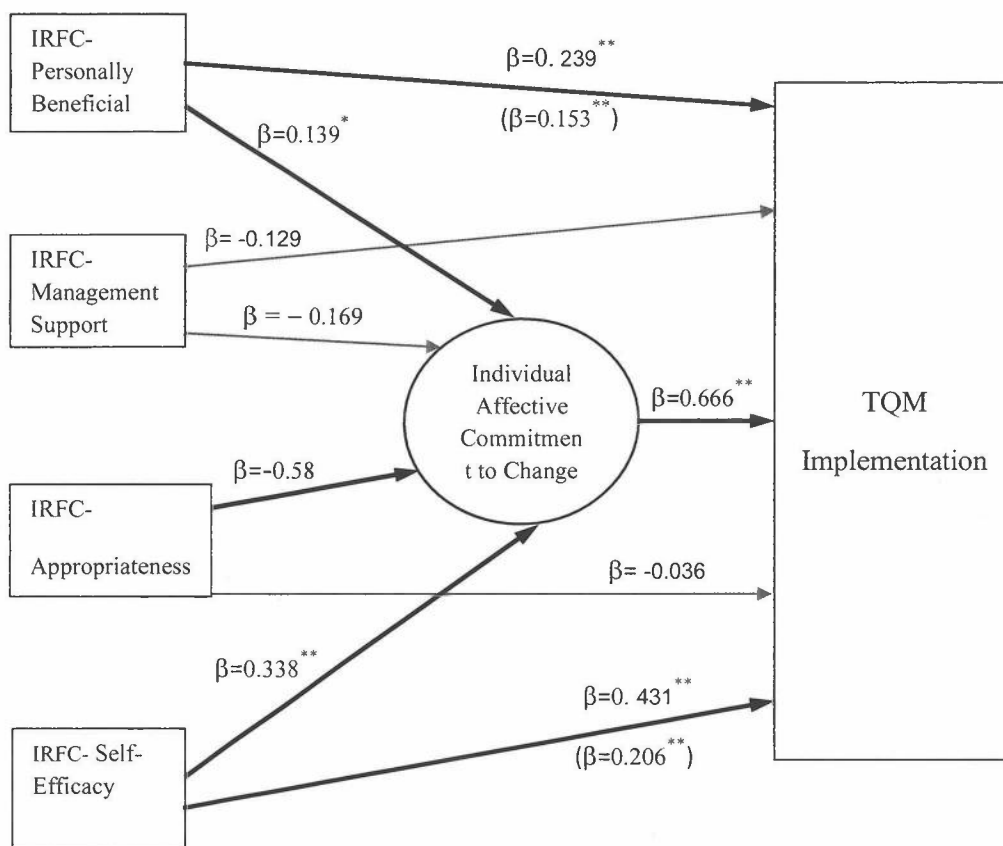


Whereas the effects of IRFC- management support and IRFC- appropriateness on TQM implementation are not mediated by IACC; thus, H4c and H4d are not supported. Therefore, modifications to the proposed conceptual framework (see Figure 4) were imposed by the results of the empirical data analysis and hypotheses testing. In support of this empirical evidence, a revised conceptual framework has been presented in Figure 4. In Model 3, the three variables accounted for 67.6% of the total variance in TQM implementation. In addition, the overall models tested were statistically significant (F-value significant on 1% level).



## 5. Discussion

The findings of this study contribute to the existing literature of knowledge by developing and validating a novel conceptual framework for explaining the relationship among IRFC components, IACC and TQM implementation. The research investigated and validated different (direct and indirect) influences of IRFC components on TQM implementation.



Standardized coefficients of the direct relationships are reported (The regression coefficients for the relationships between IRFC components and TQM controlling for IACC are in parentheses).

Grey arrows exhibit non-significant paths. All other paths significant at \* $p < 0.05$ , or \*\* $p < .001$ .

**Figure 4** The Validated Framework of the Study

As it can be seen in figure 4, the analysis of the collected data revealed that the level of IRFCs and IACC have a positive direct influence on the level of implementation of TQM practices. Based on social cognitive theory as discussed in section 2.3, it is concluded that organisational members who feel positively about the impending TQM initiative show higher levels of commitment and involvement in TQM execution efforts and are more likely to behave in a manner conducive to the success of TQM implementation. In other words, it is concluded that organisational members who felt negatively about TQM as a change initiative reported lower levels of implementation of TQM practices. This provides support for the arguments of authors including Weeks et al. (1995), McNabb and Sepic (1995), Shea and Howell (1998), Meirovich et al. (2006) and Mansor et al. (2011), by showing the significance and positive influence of IRFC and IACC on the implementation of all TQM practices. Also, these results align with the findings of Ahire et al. (1996), who have demonstrated that TQM practices are strongly correlated to each other, supporting the synergy among the practices.

Additionally, whilst many scholars, for example, Jones et al. (2005) and Haffar et al. (2013), assessed readiness for change as a one-dimensional construct, our current research provides support to the findings of Holt et al. (2007), who treated IRFC as a multidimensional construct, and concludes that the components of individual readiness for change are distinguishable. A few authors, such as Cunningham et al. (2002) and Yang et al. (2015), have found that IRFC- self-efficacy and IRFC- personal valence are associated with higher levels of change implementation. Similar findings have been reported in AMOs where the level of TQM is positively influenced by the IRFC- self-efficacy and personal valence dimensions.

We expected that IRFC-management support has a positive influence on TQM implementation. However, our results point out that IRFC- management support has no

significant effect on TQM elements. In addition, the results regarding appropriateness were in some way surprising. It was expected that organisational members who felt that TQM implementation is appropriate and beneficial for the organisation were more willing to involve TQM implementation more effectively. However, our hypothesis was not supported. Other authors have also found different results. Neves (2009) found that employees believe that change appropriateness has a significant and positive influence on change implementation. These diverse findings mean that the role of appropriateness on change-related variables (TQM practices) may depend on other contextual factors, such as the characteristics of the undergoing change, due to which these relationships would normally vary.

It would appear that in a relatively low humane oriented organisational context as exemplified in Algeria, organisational members give less consideration for the value of change at the organisational level. This might be considered as a payback for the relatively poor organisational attention to employee wellbeing and welfare. Conversely, organisational members are more interested in rewards that are personally beneficial. In effect, they give more consideration to themselves than the organisation.

It is concluded that the weight and relevance of each of the IRFC components depends on the type of change that organisations face. It seems that organisational members in Algerian manufacturing organisations focus on what is expected of them, whether they are able to do it, what the consequences of change are and what they will gain as a result of their involvement in the TQM implementation. When the change focuses primarily on the implementation of new management systems such as TQM, the role of individual variables such as self-efficacy and personal valence is enhanced in the Algerian context. Conversely, the other dimensions of IRFC, namely appropriateness and management support, are decreased. In such situations,

organisational members tend to focus on what is expected of them, whether they are able to do it (self-efficacy) and what the consequences of TQM implementation on themselves (personal valence) are. These findings have clearly shown that different IRFC components contribute in different ways to the level of TQM implementation. Moreover, the findings revealed that the relationships between IRFC- self efficacy/IRFC- personal valence and TQM implementation were partially mediated by IACC. Thus, it is concluded that organisations must first prepare organisational members to be ready for TQM induced change and subsequently prepare them to commit to the TQM implementation effort, and as a consequence, increasing employee's individual efforts to change their existing work behaviours and behave in a manner consistent with TQM principles. This aligns with the findings of several scholars, such as Jones et al. (2005) and Haffar et al. (2013), by verifying the importance of preparing organisational members to be ready psychologically in order to achieve change implementation success.

A more interesting finding is the mediational effect of IACC between IRFCs and TQM implementation. Managerially, recognising the mediational effect of IACC is a valuable find because it elucidates a mechanism by which managers improve the level of IRFCs with the intention of improving TQM implementation success. Therefore, it is essential for organisations to cultivate a change-ready environment in order to ensure a successful TQM implementation. Our study also indicates that organisations can achieve effective TQM implementation by investing in human resources. Thus, we encourage managers to appreciate the role of IRFC components and IACC in enhancing TQM implantation success.

## 6. Conclusions

This paper extends the extant TQM and change management literature by examining the mediating role of IACC in the relationship between IRFC components and TQM implementation. The authors have developed an integrative framework by combining the direct effect of IRFCs on TQM implementation and the indirect effect (through IACC) on TQM implementation in a single model. Understanding this complex relationship among TQM, IRFC and IACC helps to provide sound managerial practice to improve the success of TQM induced change effort.

The study produced two important contributions. First, it treats and examines IRFC as a multidimensional construct, composed of four components (change specific efficacy, personal benefit of the change, management support for the change and change appropriateness), where there is as yet a scarcity of empirical evidence. Thus, we bring attention to the fact that none of these factors should be left aside when planning the implementation of change initiatives as, by doing so, this may contribute to an increase in employee resistance to change or a decrease in their level of support. To this effect, managers should realise that the success of implementing any change initiatives is a consequence of the combined action of the factors highlighted above.

The findings of this study have revealed that two of the IRFC components, namely personally beneficial and change self-efficacy, are the most supportive IRFC dimensions for TQM implementation. These findings have clearly shown that different IRFC components contribute in different ways to the level of TQM implementation. Thus, this paper makes a significant contribution to the IRFC model by advancing an explanation as to how different IRFC components influence TQM implementation success. This provides insights and practical

evidence to those managers who are willing to enhance the level of IRFCs and initiate TQM more effectively.

Second, the findings show support for the mediating role of IACC in the relationship between IRFCs and TQM implementation. These findings constitute a valuable addition to the existing literature with regard to the relationship between IRFCs and TQM implementation. In particular, this paper has provided a deeper and more refined understanding of the relationship between IRFCs and TQM implementation by examining and validating both the direct and indirect effects.

Third, the majority of the previous studies relating to change management and TQM viewed the subject from a macro level and considered individuals as only a small fragment of the 'big picture' (Judge et al., 1999). The current paper is one of the few studies that stress the importance of individuals and give considerable attention to the micro level processes that take place during TQM implementation. The findings of our study support that claim and indicate that individuals who are psychologically prepared for change tend to be more positively disposed to the actual TQM implementation. They are likely to have adversarial attitudes towards any obstacles that hinder TQM induced change implementation. Therefore, we believe that more future studies should be given to the micro level processes that take place during TQM implementation.

Fourth, this paper also adds value via its contextual originality, being the first study that has empirically examined the influence of IRFC on TQM in Algerian manufacturing organisations (AMOs). To date, empirical research on organisational change in the context of North African countries is lacking, thus limiting any possible insights for managers and

practitioners in North Africa to rely on as a guide for management practice. Recently, many of these European countries such as Germany and France have increased their investments in Algeria, particularly after the implementation of the Association Agreement between the EU and Algeria, and the establishment of the Euro-Mediterranean free-trade area in this virgin market. Thus, many AMOs have recently introduced modern management systems, including TQM, in order to improve their competitiveness in the domestic and international markets (Kasemi, 2009; European Commission, 2010). However, the results of this study indicated that the majority of AMOs do not seem to have put enough effort to make their members to be ready psychologically for various changes introduced. The top management in AMOs have not encouraged their members to commit themselves to TQM. Most of the employees in AMOs have not got the required skills and have not followed the necessary training that is essential to implement TQM practices successfully. Therefore, members appear to have negative attitudes towards TQM induced change as they do not believe in their ability to perform successfully with the implementation of TQM, and that they will not get any personal benefits from TQM implementation. In addition, employees in AMOs feel that the TQM does not improve the overall efficiency of their organisations. Thus, employees in AMOs reported low levels of IRFC and held a negative attitude towards TQM implementation. Consequently, they demonstrated low levels of commitment and contribution in TQM implementation and did not take an active part in the implementation of TQM practices. Thus, our findings support the arguments of various authors such as Meirovich et al. (2006) and Haffar et al. (2013) who believe that ignoring the strategic value and vital role of employees during TQM implementation, as well as the low level of individual readiness for change, causes failures in implementing TQM.

### *6.1 Managerial implications*

Manufacturing companies have been and will continue to be, for a while, a mainstay of the economy in Algeria. Hence, the results of this study offer several managerial 'take-away' implications for practitioners and policy makers in order to enhance the level of IRFC and to implement TQM successfully.

Firstly, the leaders of AMOs should create positive employee attitudes towards TQM induced change. AMOs' top management must first prepare organisational members to be ready for TQM induced change and subsequently prepare them to commit to TQM implementation efforts.

Secondly, AMOs should explain the positive influence of TQM implementation on the performance of their organisations. In addition, the leaders of AMOs should encourage their employees' involvements in TQM implementation by developing a fair incentive scheme and reward the members who contribute in the TQM implementation success. This will result in a reinforcement of the employee's feelings of personal benefits which they would attain as a result of their effective involvement in TQM implementation.

Thirdly, AMOs should put greater emphasis on participation and collaboration, and encourage each member to take part in decision making and solving the problems of the organisation. Moreover, AMOs' leaders should focus on human resource improvement and provide their members with training on the implementation of various TQM practices. This leads to strengthening the members' feelings of self-efficacy, and this in turn will lead them to behave in a manner consistent with TQM principles, by showing higher levels of involvement in TQM execution efforts. Consequently, this would assist AMOs to achieve global marketing effectiveness and competitiveness in the international markets.



## *6.2 Limitations and Further Research*

Despite the useful findings of this empirical study, there are some limitations that lead to avenues for future research. One important limitation is that this study was based on the cross-sectional research design, as opposed to a longitudinal design, which does not allow affirmative causal explanations and restricts the researchers' ability to tackle or refer to the change or the development of the phenomenon under study over a period. For example, it would be beneficial to investigate the recursive influence between IRFC and TQM implementation, and such a study can only be conducted via a longitudinal study. Future work should use longitudinal designs that allow for tracing possible changes and developments of a phenomenon and the relationship between the variables over a period of time. This will allow for a more precise and clearer picture of the change process.

In addition, there are two interrelated sampling limitations. First, this study approached and made use of one relevant respondent in each organisation, who is the person most familiar with the topic, to complete the questionnaire. The use of single informants is widespread in operations management research (Sila, 2007). However, using only one respondent may still pose a limitation to this study. Using multiple raters could improve the quality of the data as it “reduces the correlation between systematic error components, averages out random error in individual responses, provides the opportunity to analyse the impact of error sources, if any, and provides a method of correction for systematic error in informants’ responses” (Van Bruggen et al., 2002, p. 471). In order to lessen the possible problems related with utilising single informants, established methodological instructions were conducted. For example, the questionnaire was formulated and pre-tested to enhance the validity of the data to be collected, and the suitable key participants were identified by name and job title before the questionnaires

were sent out (Huber and Power, 1985). Despite the fact that the latter might be seen to pose an ethical issue, in the Algerian context such an issue does not pose a problem, but does ensure reliability.

Another potential limitation related to data analysis which was handicapped by the sample size. The authors would have preferred the use of Structural Equation Modeling (SEM) as an effective alternative method for the hypotheses testing. SEM, however, requires a large sample (at least  $N > 200$  and preferably no less than 400) to benefit from its advantages (Kline, 2005). This was not possible as the population size itself is less than 400 and as previous study conducted in Algeria show, it is extremely difficult to have a high rate of return in that country. Djebarni (1996) observed that the instability of the political climate coupled with overzealous gatekeepers make the data collection a very difficult process. Therefore, our study conducted multiple regression analysis (MRA) as a reasonable tool for examining direct and mediated hypotheses. Extant studies published in high quality journals, such as *IJPE* have used MRA and came up with rigorous findings (e.g. Yang et al., 2010). However, the present study suggests that future research should verify our findings with a larger sample size in a different contexts using SEM.

There are several other opportunities for future research given our present findings. The current study focuses on AMOs, and the characteristics of these organisations may be relatively different from those in other countries. Therefore, the findings of this study should not be generalised. However, our research model and findings may give an essential reference and should be replicated in different settings and countries, particularly in Arabic countries. This would help to strengthen and validate the theoretical contribution of this study. Research studies in the field of change management in developing countries and international studies have been

relatively limited, specifically in the Arab countries. However, a number of authors, such as Zahra (2011) and Kalliny et al. (2012) have considered that Arab organisations represent a fertile ground for empirical research. In the context of the so-called “Arab Spring”, the popular uprisings that have ensued in a number of Arab countries in recent months and years, have led the Arab organisations to experience and face extensive changes. Therefore, we suggest that future studies should address the dearth of scholarship about change management and the relationships between TQM, individual readiness for change and commitment to change in Arab countries. This would help in more accurately determining the relationship between the research’s constructs on more varied and balanced data sets in terms of different countries’ contexts.

It is clear that the concepts of individual readiness for change and commitment to change have been gaining attention in recent years, and will probably continue to do so in the future. Achieving a better understanding of how employee commitment to change and employee readiness for change components impact change implementation success has many implications for employees and organisations alike. We hope that this study has aided in directing those future endeavours by identifying areas where questions remain in both academia and industry.

## References

- Agus, A., Abdullah, M., 2000. Total quality management practices in manufacturing companies in Malaysia: An exploratory analysis. *Total Quality Management*. 11, 1041–1051.
- Ahire, S. L., Goihar, D. Y., Waller, M. A., 1996. Development and validation of TQM implementation constructs. *Decision Sciences*, 27, 23-56.
- Armenakis, A.A., Harris, S.G., Mossholder, K.W., 1993. Creating readiness for organisational change, *Human Relations*, 46, 681–703.
- Bandura, A., 1986. *Social Foundations of Thought and Action: A Social Cognitive Theory*, Englewood Cliffs, NJ: Prentice-Hall.
- Baron, R. M., Kenny, D. A., 1986. The Moderator-Mediator Variable Distinction in Social Psychological Research: Conceptual, Strategic, and Statistical Considerations. *Journal of Personality and Social Psychology*. 51, 1173–1182.
- Bayazit, O., Karpark, B., 2007. An analytical network process-based framework for successful total quality management (TQM): An assessment of Turkish manufacturing industry readiness. *International Journal of Production Economics*. 105, 79-96.
- Bower, J. L., 1970. *Managing the resource allocation process*. Boston: Harvard University Press.
- Bryman, A., Bell, E. (2015) *Business Research Methods* (4<sup>th</sup> edition). Oxford: Oxford University Press.
- Butler, N., 2015. Algeria — falling oil prices add to the risk of instability. THE FINANCIAL TIMES LTD. Available at: (<http://blogs.ft.com/nick-butler/2015/10/26/algeria-falling-oil-prices-add-to-the-risk-of-instability/>)
- By, R.T., 2007. Ready or not, *Journal of Change Management*. 7, 3–11.
- Calvo-Mora, A., Ruiz-Moreno, C., Picón-Berjoyo, A., Cauzo-Bottala, L. 2014. Mediation effect of TQM technical factors in excellence management systems. *Journal of Business Research*. 67, 769-774.

Case, S. S. and Srikatiana, P., 1998. Factors influencing TQM implementation in knowledge work environments: An integrative framework. Academy of Management Annual Meeting, San Diego

Choi, M., Ruona, W.E.A., 2011. Individual Readiness for Organisational Change and Its Implications for Human Resource and Organisation Development. *Human Resource Development Review*. 10, 46–73.

Choi, M., Ruona, W.E.A., 2013. Individual Readiness for Organizational Change – Chapter 16, in *The Wiley-Blackwell Handbook of the Psychology of Leadership, Change, and Organizational Development*, ed Leonard, H. S., Lewis, R., Freedman A. M. and Passmore, J. John Wiley and Sons, Ltd.

Choi, Y., Kim, J. Y. Yoo, T., 2016. A study on the effect of learning organisation readiness on employees' quality commitment: the moderating effect of leader–member exchange. *Total Quality Management and Business Excellence*, 27, 325–338

Ciampa, D. 1992. *Total Quality: A Users' Guide for Implementation*, Addison-Wesley, Reading.

Coyle-Shapiro, J. A., 2002. Changing Employee Attitudes. The Independent Effects of TQM and Profit Sharing on Continuous Improvement Orientation. *The Journal of Applied Behavioral Science*, 38, 57-77.

Cunningham, C. E., Woodward, C. A., Shannon, H. S., MacIntosh, J., Lendrum, B., Rosenbloom, D. Brown, J. 2002. Readiness for organisational change: A longitudinal study of workplace, psychological and behavioural correlates. *Journal of Occupational and Organisational Psychology*. 75, 377-392

Djebarni, R., 1996. The impact of stress in site management effectiveness, *Construction Management and Economics*. 14, 281-293.

Decker, P., Durand, R., Mayfield, C.O., McCormack, C., Skinner, D. Perdue, G., 2012. Predicting implementation failure in organisational change, *Journal of Organizational Culture, Communications and Conflict*. 16, 39-59

Deming, W.E. 1982. *Quality Productivity and Competitive Position*, Cambridge, Massachusetts Institute of Technology.

Eby, L.T., Adams, D.M., Russell, J.E.A. Gaby, S.H., 2000. Perceptions of organisational readiness for change: factors related to employees' reactions to the implementation of team based selling. *Human Relations*. 53, 419–442.

European Commission, 2013. Strategy paper 2007-2013 and National indicative programme 2007-2010 - Algeria . [Online], Available at:

([https://ec.europa.eu/europeaid/sites/devco/files/csp-nip-algeria-2007-2013\\_en.pdf](https://ec.europa.eu/europeaid/sites/devco/files/csp-nip-algeria-2007-2013_en.pdf))

Ford, J.D., Ford, L.W., 2010. Stop blaming resistance to change and start using it. *Organizational Dynamics*. 39, 24-36.

Georgiev, S. and Ohtaki, S., 2016. Evolution and implementation of quality management practices in the manufacturing sector in Eastern Europe after the end of communism. *International Journal of Quality Reliability Management*. 33, 804 – 829

Gist, M. E., Mitchell, T.R, 1992. Self-Efficacy - a Theoretical-Analysis of Its Determinants and Malleability. *Academy of Management Review*. 17, 183-211.

Goll, I. Rasheed, A., 1997. Rational Decision-Making and Firm Performance: The Moderating Role of Environment. *Strategic Management Journal*. 18, 583-591

Green, S., 1991. How many subjects does it take to do a regression analysis. *Multivariate Behav Res*. 26, 499-510.

Haffar, M., Al-Karaghoul, W., Ghoneim, A., 2014. An empirical investigation of the influence of organizational culture on individual readiness for change in Syrian manufacturing organizations. *Journal of Organizational Change Management*, 27, 5-22

Haffar, M., Al-Karaghoul, W. Ghoneim, A. 2013. The mediating effect of individual readiness for change in the relationship between organisational culture and TQM implementation. *Total Quality Management and Business Excellence*. 24, 693-706.

Hair, J. F., Black, W. C., Babin, BJ, Anderson, R. E., Tathan, R. L., 2006,. *Multivariate data analysis*, Pearson Prentice-Hall, New Jersey

- Herold, D.M., Fedor, D.B. Caldwell, S.D., 2007. Beyond change management: A multilevel investigation of contextual and personal influences on employees' commitment to change. *Journal of Applied Psychology*, 92, 942-951.
- Herscovitch, L. Meyer, J.P. 2002. Commitment to organizational change: extension of a three component model. *The Journal of Applied Psychology*. 87, 474-487.
- Holt, D.T., Armenakis, A.A., Field, H.S. Harris, S.G. 2007. Readiness for Organisational Change: The Systematic Development of a Scale. *The Journal of Applied Behavioural Science*. 43, 232-255.
- Huber, G.P., Power, D.J., 1985. Retrospective reports of strategic level managers: Guidelines for increasing their accuracy. *Strategic Management Journal*. 6, 171-180
- Ingelsson, P., Eriksson, M. Lilja, J. 2012. Can selecting the right values help TQM implementation? A case study about organisational homogeneity at the Walt Disney Company. *Total Quality Management and Business Excellence*. 231, 1-11.
- Irani Z., Sharp, J. M., 1997. Integrating continuous improvement and innovation into a corporate culture: A case study'. *The International Journal of Technological Innovation, Entrepreneurship and Technology Management (Technovation)*. 17, 199-206.
- Irani, Z., Beskese A., Love, P E D. 2004. Interactions between total quality management and corporate culture'. *The International Journal of Technological Innovation, Entrepreneurship and Technology Management (Technovation)*. 24, 643-650.
- Irani Z. 2010 'Investment Evaluation within Project Management: An Information Systems Perspective'. *Journal of the Operational Research Society (JORS)*. 61, 917-928.
- Joffé, G. 2015. The Outlook for Algeria. IAI Working Papers. 15, 1-14. Available at: (<http://www.iai.it/sites/default/files/iaiw1538.pdf>)
- Jones, R.A., Jimmieson, N.L. Griffiths, A., 2005. The Impact of Organisational Culture and Reshaping Capabilities on Change Implementation Success: The Mediating Role of Readiness for Change, *Journal of Management Studies*. 42, 361-386.

- Judge, T. A., Thoresen, C. J., Pucik, V., Welbourne, T. M. 1999. Managerial coping with organizational change: A dispositional perspective. *Journal of Applied Psychology*, 84, 107-122.
- Kalliny, M., Martinez, C.A. Cook, J. 2012. Special issue on the Arab Spring and the multinational enterprise: challenges and opportunities, *Multinational Business Review*, 20.
- Kasemi, K., 2009. The qualification requirements for quality management system in Algerian SMEs. *Journal of Economic and Management Sciences*. 9, 165-178
- Kline, R. B., 2005. *Principles and practice of structural equation modeling* (2nd ed.). New York: Guilford Press
- Kuo, T., Kuo, Y., 2010. The effect of corporate culture and total quality management on construction project performance in Taiwan, *Total Quality Management*, 21, 617–632.
- Lam, S., Lee, V., Ooi, K. Lin, B., 2011. The relationship between TQM, learning orientation and market performance in service organisations: An empirical analysis. *Total Quality Management and Business Excellence*. 22, 1277–1297.
- Malouk, M., 2010. The impact of quality certification on the performance of the Algerian institutions: The case of ISO 9001 2000 standard. Ferhat Abbas University. Available at: ([http://www.univsetif.dz/MMAGISTER/images/facultes/SEG/2011/MELOUK\\_MONCEF.pdf](http://www.univsetif.dz/MMAGISTER/images/facultes/SEG/2011/MELOUK_MONCEF.pdf))
- Mansor, N., Abdullah, Z. Azman, N.A., 2011. The successful implementation of TQM: In Malaysian Local Authority, *Proceeding of Asia-Pacific Business Research Conference*, Kuala Lumpur, Malaysia.
- McKay, K., Kuntz, J.R.C., Näswall, K., 2013. The Effect of Affective Commitment, Communication and Participation on Resistance to Change: The Role of Change Readiness. *New Zealand Journal of Psychology*. 42, 29-40.
- McNabb, D.E. Sepic, F.T., 1995. Culture, Climate, and Total Quality Management: Measuring Readiness for Change, *Public Productivity and Management*. 18, 369-385.
- Meirovich, G., Galante, I. Yaniv, K.M., 2006. Attitudes Towards TQM and the Communication Process between Managers and Subordinates, *Journal of Applied Management and Entrepreneurship*. 11, 74-86.



- Meyer, J.P. Allen, N.J., 1991. *Commitment in the Workplace: Theory, Research, and Application*, Sage Publications, USA.
- Meyer, J. P., Herscovitch, L., 2001. Commitment in the workplace: Toward a general model, *Human Resource Management Review*. 11, 299–326.
- Meyer, J.P., Srinivas, E.S., Lal, J.B. Topolnytsky, L., 2007. Employee commitment and support for an organizational change: Test of the three-component model in two cultures, *Journal of Occupational and Organizational Psychology*. 80, 185-211.
- Meyer, J.P., Stanley, D.J., Herscovitch, L. Topolnytsky, L., 2002. Affective, continuance, and normative commitment to the organization. *Journal of Vocational Behavior*. 61, 20–52.
- Neal, A., 2008. Preparing the organization for change. *Strategic Human Resource Review* 7, 30-35.
- Neubert, M.J. and Cady, S.H., 2001. Program commitment: a multi-study longitudinal field investigation of its impact and antecedents, *Personnel Psychology*, 54, 421-48.
- Neves, P., 2009 Readiness for change: Contributions for employee's level of individual change and turnover intentions. *Journal of Change Management*, 9, 215-231
- O'Neill, P., Sohal, A. and Teng, C.W. 2015. Quality management approaches and their impact on firms 'financial performance – An Australian study. *International Journal of Production Economics*, In Press.
- Ould Ahmed, H., 2015. After oil price drop, Algeria eyes subsidy system reform. Thomson Reuters. Available at:  
(<http://www.reuters.com/article/algeria-subsidy-idUSL8N13L1TD20151127>)
- Porras, J.I., Robertson, P.J., 1992. Organizational development: Theory, practice, and research. In M.D. Dunnette and L.M. Hough Eds., *Handbook of industrial and organizational psychology* 2nd ed., 3, 719-822. Palo Alto, CA: Consulting Psychologists Press.
- Preskill, H., Torres, R.T., 2001. Organizational readiness for learning and evaluation. Paper presented at the 2001 Academy of Human Resource Development International Research Conference, Tulsa, OK.

- Sadikoglu, E., Olcay, H., 2014. The Effects of Total Quality Management Practices on Performance and the Reasons of and the Barriers to TQM Practices in Turkey. *Advances in Decision Sciences*. 14, 1-17
- Sadikoglu, E., Zehir, C., 2010. Investigating the effects of innovation and employee performance on the relationship between total quality management practices and firm performance: An empirical study of Turkish firms, *International Journal of Production Economics*, 127, 13-26.
- Sadikoglu, E., Zehir, C., 2008. The impact of contextual factors on total quality management practices, *Journal of Global Strategic Management*. 4, 88-97.
- Salvato, C., Rerup, C., 2011. Beyond collective entities: Multilevel research on organizational routines and capabilities. *Journal of Management*, 37, 468-490.
- Samson, D. Terziovski, M., 1999. The relationship between total quality management practices and operational performance. *Journal of Operations Management*. 17, 393-40.
- Santhidran, S., Borromeo. H.M. Chandran, V.G.R., 2010. Enabling Change in Malaysia: Leadership, Commitment to Change, and the Mediating Role of Change Readiness, 5th Asia Organization Development Summit held in Manila, Philippines.
- Schein, E. H., 2010. *Organizational culture and leadership*. San Francisco, CA: John Wiley and Sons.
- Schneider, A.P. Brief, R.A. Guzzo, R., 1996. Creating a climate and culture for sustainable organisational change, *Organisational Dynamics*. 24, 7-19.
- Sharma, B. Gadenne, D., 2008. An Empirical Investigation of the Relationship between Quality Management Factors and Customer Satisfaction, Improved Competitive Position and Overall Business Performance, *Journal of Strategic Marketing*. 16, 301-314.
- Shea, C, Howell, J., 1998. Organisational Antecedents to the Successful Implementation of Total Quality Management, *Journal of Quality Management*. 3, 3-24.
- Shum, P., Bove, L. Auh, S., 2008. Employees' affective commitment to change: The key to successful CRM implementation, *European Journal of Marketing*. 42, 1346 – 1371.

- Sila, I., 2007. Examining the effects of contextual factors on TQM and performance through the lens of organisational theories: an empirical study, *Journal of Operations Management*. 25, 83–109.
- Soltani, E., Lai P.G Gharneh, N.S., 2005. Breaking Through Barriers to TQM Effectiveness: Lack of Commitment of Upper-Level Management, *Total Quality Management*. 16, 1009–1021.
- Soltani, E., Sayed Javadin, R. and Lai, P., 2008. A review of the theory and practice of quality management: An integrative framework. *Total Quality Management and Business Excellence*. 19, 461–479.
- Soltani, E. Wilkinson, A., 2010. Stuck in the middle with you: The effects of incongruity of senior and middle managers' orientations on TQM programmes, *International Journal of Operations and Production Management*. 30, 365 – 397.
- Sonenshein, S. Dholakia, U., 2011. Explaining Employee Engagement with Strategic Change Implementation: A Meaning-Making Approach, *Organization Science*, 23, 1-23.
- Sousa, R. Voss, C.A., 2001. Quality management: universal or context dependent?, *Production and Operation Management*. 10, 383–404.
- Srinivasan, A., Kurey, B., 2014. Creating a culture of quality. *Harvard Business Review*. 92, 23-25.
- Stevens, G.W., 2013. Toward a Process-Based Approach of Conceptualizing Change Readiness. *The Journal of Applied Behavioral Science*. 493, 333–360.
- Su, S., Baird, K., Blair, B., 2009. Employee organizational commitment: the influence of cultural and organizational factors in the Australian manufacturing industry. *The International Journal of Human Resource Management*. 20, 2494-2516.
- Tabachnick, B. G., Fidell, L. S., 2013. *Using Multivariate Statistics*, 6th ed. Boston : Pearson.
- Valmohammadi, C. Roshanzamir, S., 2015. The guidelines of improvement: Relations among organizational culture, TQM and performance. *International Journal of Production Economics*. 164, 167-178.

- Van Bruggen GH, Lilien GL, Kacker M., 2002. Informants in organizational marketing research: why use multiple informants and how to aggregate responses. *Journal of Marketing Research*. 344, 469–478.
- Visagie, C.M Steyn C., 2011. Organisational commitment and responses to planned organisational change: An exploratory study. *Southern African Business Review*. 15, 98- 121.
- Wail, S., Boujelbene, Y., 2011. Cultural Influences on TQM Implementation and Financial Performance in Tunisian Firms. *Economics and Management Journal*. 3, 30-45
- Weeks, B., Helms, M.M. and Ettkin., L.P., 1995. Is your organisation ready for TQM?, An assessment methodology, *The TQM Magazine*. 7, 43–49.
- Weiner, B.J., 2009. A theory of organisational readiness for change, *Implementation Science*, 4, 1-9.
- Whetten, D.A. Cameron, K.S., 1991. *Developing Management Skills*. 2<sup>nd</sup> ed., HarperCollins, London.
- Whetten, D.A., Cameron, K.S. Woods, M., 2000. *Developing Management Skills for Europe* 2<sup>nd</sup> ed., Pearson Education Limited.
- Wu, S.J Zhang. D., 2013. Analyzing the effectiveness of quality management practices in China. *International Journal of Production Economics*. 144, 281–289.
- Yazdanim. B., Attafar, A., Shahin, A., Kheradmandnia, M., 2016. The impact of TQM practices on organizational learning case study. *International Journal of Quality and Reliability Management*. 33, 574 – 596.
- Yang, C., Lin, S., Chan, Y., Sheu, C., 2010. Mediated effect of environmental management on manufacturing competitiveness: An empirical study. *Int. J. Production Economics*. 123, 210–220
- Yang, Y., Lee, P.K.C. Cheng T.C.E., 2015. Continuous improvement competence, employee creativity, and new service development performance: A frontline employee perspective. *International Journal of Production Economics*, In Press.

Zahra, S., 2011. Doing research in the new Middle East: sailing with the wind, *Academy of Management Perspectives*. 25, 6-21.

Zairi, M., 2013. The TQM legacy – Gurus' contributions and theoretical impact. *The TQM journal*. 25, 659-676

Zeng, J., Phan, C.A. Matsui, Y., 2015. The impact of hard and soft quality management on quality and innovation performance: An empirical study. *International Journal of Production Economics*. 162, 216-226.

Zhao, X., Yeung, A.C.L Lee, T.S., 2004. Quality management and organisational context in selected service industries of China, *Journal of Operations Management*. 22, 575-587.